

# Aviation News

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Directs Navy's Global Airline: Capt. D. F. Smith, USN, director of Naval Air Transport Service, which carries on scheduled military transport services over a world-wide transoceanic and overland network of more than 65,000 miles in addition to special and emergency missions which clock more tens of thousands of miles monthly.

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New propeller device is fully as effective as installations on wheels, declares Army Air Forces materiel chief ..... Page 11



## ...in Electronic Control Systems for Bombers

MINNEAPOLIS-HONEYWELL stands first in the application of electronic control systems to bombers. Except for radio communications which has been an everyday use for a number of years, Minneapolis-Honeywell makes the only Electronic Control Systems that are standard equipment on all heavy bombers.

Today everyone is familiar with precision bombing and the increased accuracy made possible by the Minneapolis-Honeywell Electronic Automatic Pilot

that is but one of a number of M-H electronic controls in daily use in all war theaters.

When the war is won, the same engineering ability that has put Minneapolis-Honeywell first in aircraft electronic control systems for bombers will be available for the transport and cargo planes designed to occupy so important a place in our future life. Minneapolis-Honeywell Regulator Company, Aeronautical Division, 1997 Fourth Avenue South, Minneapolis 8, Minnesota. Branches in all principal cities.



THE AVIATION NEWS

## Washington Observer

**MYSTERY OF THE "MIDNIGHT MAULER"**—It was poised to meet aviators people when Wright Field announced the conversion of the Douglas A-26 bomber, a veritable craft, into a night fighter, armed with four 20 mm. canons and designated officially as the P-18, and unofficially as the "Midnight Mauler." This craft has not been in production for more than a year, and not more than 100 or so ever were built. Why it was decided to release a story on them is something of a mystery and some of the people involved confess privately that they don't know the answer either. Wright Field officials gave no details of the modification except to say that the plane is fitted with night interceptor equipment and other installations to facilitate night fighting.

**DRF IS THE ORIGIN**—The Midnite Mauler goes back to the old DRF, where Douglas was making, for the French. A later model, the DB7A, also went to the French in some numbers and the company was on the DB3B when France collapsed and subsequently the British took over the rest of the order. Later the British reworked these into night fighters with good results in the early days of the Battle of Britain. Later on, in this country, the A-20 was converted into the P-70 which was a secret to no one. AAF review even passed a story on it several months ago. Pictures were printed last fall. It was somewhat similar to the British version, which was called the Havoc. The P-70 is not to be confused with the latest model A-28, heavier by Douglas, which is so heavily armed with cannon that it has moved into the fighter-bomber class.

**CARGO AIRSHIPS**—Some interesting studies have been made of cargo-carrying airships as air cargo uniting rapid transports and there is need to be more capital fitting with the idea of cargo transportation by airships in the post-war period. There apparently is no likelihood of Melpa being used for cargo, since the expense of ground handling is virtually the same as for the bigger rigid ships, with economy of operation favoring the rigid.

**POST-WAR MARKETS**—Aviation sleepers in form, hesitating to stay in aviation after the war point to the ready-made market that will exist for such consumer goods as refrigerators, electrical appliances of all kinds and other items of standard household equipment which have virtually disappeared from dealers' shelves. The

NPA has made it clear there can be no substantial diversion to peacetime economy until the war is definitely won.

**PILOT ADMINISTRATORS**—The war is breeding a new, practical type of airline administrative official which may affect the entire executive lineup of our airlines after the war. Experienced, capable pilots who, before going into the Army, shuttled airliners between New



Super-track carts at Willow Run Liberator

York and Chicago or Chicago and the West will take the Army expecting to find little contact except for their uniforms and the camouflage paint on their Army transports. Instead, the Air Transport Command begins placing these in key administrative jobs at a dock, running the show. They seem to like it. Some do not care if they are in uniform or not. The Air Transport Command probably won't be able to absorb all of these administrators, but they will take back the best of them. This is another indication that many of the men who will operate our post-war airlines will be of a new generation.

**ATC'S FUTURE**—Hawks are rampant that the Air Transport Command is cocking an eye to the days of peace. Plots and counter-plots among ATC personnel are described by those supposedly "in the know." There are stories that some routes which would be commercially unprofitable after the Airman will be maintained by the ATC as defense airways. There are other stories that offices are getting themselves well entrenched to operate globe-girdling



# DON'T LOOK NOW— BUT HERE COMES 444 LADIES STOCKINGS



YES Sir!—Barbys Mori, that Jay Silsborn, has another knot in his tail. Parachutes are being made of California acetate rayon. Strong parachutes. Safe parachutes!

It is acetone-produced by Shell from a waste petroleum gas—which changes a cotton derivative, cellulose acetate, to a syrupy liquid—the “spinning solution.” This is forced through holes of microscopic fineness. Presto! Silky fibers. These are twisted into thread. From them, you can name what you want—from sheer, glistening stockings to a parachute!

Then—one more outstanding contribution to America's war effort from Shell

Shell was first, too, to supply American military aviation with a super fuel—100 octane gasoline—giving our planes new speed, flying range and tactical advantage. Later Shell discovered vastly increased both the power and production of aviation gasoline.

Such achievements are reasons why the majority of the country's leading plane and engine makers use Shell Aviation Fuels. And why Shell Aviation Products are also preferred by many airlines, aviation training schools, and airports.

Faughard sugar operators will find Shell's wartime products a profitable postwar asset.



First oil refinery to make Army-Navy “E”—  
Shell's Wood River Refinery.

## FINER FUELS FOR THE AGE OF FLIGHT



## OWI Report Reveals Colossal Job Done by Little-Publicized NATS

Service carries 8,300,000 pounds of cargo and mail and 22,500 priority passengers monthly, survey reveals

By SCOTT BERSHIEY

Bowdoin five days after Pearl Harbor, the Naval Air Transport Service is doing yeoman-duty around the world with small recognition and, in Navy tradition, sitting pretty. NATS in its unending traffic run, carries approximately 8,300,000 pounds of cargo and mail and about 22,500 priority passengers a month

which is assigned to the report an OWI expert on aviation.

In addition to former airline personnel now serving with the NATS, and it should not be overlooked that without the aid of the airlines the operations would have been impossible, Pan American Airways System and American Export Airlines, under contract to the Navy, conduct a number of NATS operations of the same type as those carried on by regular NATS units.

**South America to Alaska**—Pan American flies NATS schedules in the Atlantic and Pacific and from the United States to Alaska and South America.

American Export's NATS contracts are for transport along Atlantic routes from this country to Africa and South America.

**“Nots” Reward Flight**—The Naval Air Transport Service is a division of the office of the chief of Naval Operations. Capt. D. F. Smith is director.

An outstanding case in point of NATS operations is the Martin Marlin flying boat which recently landed in Hawaii as an initial Pacific operation after establishing records on a nonstop flight to Naval, Brazil, and a nonstop flight home.

Secretary prevents disclosure of the size of the NATS fleet which the Navy says is composed of both seaplane and landplanes—in almost equal proportion. With large landplanes now flying over seas extensively, about two out of every three aircraft are in trans-oceanic service. The remainder are used within the United States, connecting naval bases with plants where supplies are manufactured.

**OWI Report**—These data are all from a report prepared by the Office of War Information which has had the complete cooperation of the Navy in gathering information, and

sends from Alameda, Calif., to Pearl Harbor and southwest through the Pacific to Australia. The NATS today makes this trip in three days.

In the landplane operation to Alaska and the Aleutians, Douglas C-45 and R3D transporters (Navy's designation for the Army's C-45) specially designed and widened, are flown by crews trained to cope with weather hazards of the treacherous seas between the naval air stations of Seattle and Kodiak, and more advanced Aleutian bases.

**East to Coast**—Inland from the west coast, NATS landplane schedules are operated between naval air stations at Goldord, Alameda, San Diego, and Palos Verdes, Md., and New York. At the latter two points, these stations match with NATS operations from east coast naval air stations. East coast cargo schedules are carried from Newfoundland through Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Jacksonville, Pensacola, and New Orleans to Corpus Christi.

A summer NATS service goes to Greenland and Iceland.

**East Coast Route**—Another route from the east coast leads south from Norfolk to naval establishments at Guantánamo, Cuba, San Juan, Puerto Rico, Aruba, St. Louis, Trinidad, and along the east coast of South America to Natal and Rio de Janeiro, Brazil.

Also from New York, Palos Verdes, and Miami, NATS flying boats are in scheduled service through

## NATS Progress Report

- 1. Carries on scheduled passenger service of more than 80,000 miles monthly, and cargo and mail delivery to 100 emergency stations.
- 2. Conducts the fleet a two-week maintenance and supply service that has been an important factor in our naval warships.
- 3. Has given an 85% reduction from the operation of one flying boat to ten full transport squadrons, several ferry units, and large contract operations by Pan American Airways System and American Export Airlines.
- 4. Annually brings in hundreds of thousands of pounds of urgently needed materials such as steel, timber, and other supplies.
- 5. Is rapidly expanding its services to meet the Navy's requirements and enlarging its training program—the latter partly through contract services of Pennsylvania-Central Airlines, American Airlines, Pan American, American Export, and United Air Lines.
- 6. Is developing new or improved air transport techniques, some of which will be available to commercial aviation after the war.



# Official Silence Greets Queries On Who'll Direct Reconversion

Nelson-Bairch deadlock continues with no indication of imminent break; Wilson looks as compromise choice.

The "Ten-Tube" reconversion proposed by WPA Chairman Donald M. Nelson, which would permit very small manufacturers to produce a limited quantity of civilian goods from surplus materials, was the only positive step taken during the week in the direction of reconversion. Still unsettled were such questions as:

Who will direct the reconversion of American industry? On what basis of settlement will contracts be terminated? What policies will control the disposition of government-owned plants and surplus inventories?

These are the big questions and so far they have been met with official silence. Meanwhile, the Nelson-Bairch deadlock continued with no indication of an imminent break, while on Capitol Hill, Congress moved methodically forward with its awaited sign of legislative answers to everything. Supply additions, however, are the total accomplishments at zero.

**Ex-Proposed Stalled.**—Mr. Nelson's proposal for experimenting with reconversion was considered more im-



THESE EMERGENCY RATIONS MAY SAVE LIVES:

All airplanes operating in the Naval Air Transport Service carry equipment for any emergency. Pictured above are such items as drinking water, raisins, fruit and equipment, fishing tackle, ice marking material, tall flashlight and life raft.

This plan, when carried out, will have little if any direct effect on the aircraft industry, since the plants engaged are so small that it is extremely doubtful that any plant having aircraft or aircraft component orders would qualify. It is interesting to observe, however, that if successful, the plan may be broadened to include plants making parts for aircraft.

**War Orders First.**—What was more significant in Nelson's Chicago speech, however, was his reaffirmation of WPA's policy of resuming work on war orders until the military situation shows a green light. "I would rather two months in reconversion than two months in re-cessation," Mr. Nelson declared, "than five months late in military production."

Meanwhile, the Senate's contract termination bill was completed, but committee members declined to make its contents public until after it had been given more study. Members of four committees were over the proposed measure carefully for reintroduction probably before the end of the month. A tentative timetable calling for passage by both houses by the first of March has been set, but all persons familiar with Congressional procedures agree that this is optimistic in the extreme. One of the chief provisions of the measure is said to be the establishment of a unit, working under the office of war mobilization, to handle contract termination problems.

**House Action.**—The House of Representatives also moved to get into the reconversion business. Speaker Sam Rayburn announced that he would shortly issue a bipartisan committee to study and report on post-war economic planning and policy, a committee which, presumably, would parallel the Senate committee headed by Senator Walter F. George. Representative William M. Colmer, of Mississippi, is expected to head this committee, which will likely contain five Republicans and seven Democrats. Real importance behind appointment of this committee, however, is that it indicates the House is readying itself to reverse the Senate measure and wants to be geared to give it prompt attention.

**Wilson to Remain.**—Charles E. Wilson, executive vice-chairman of WPA, who is the White House's vice-chairman, in Chicago, returning to his office, Mr. Wilson announced that the President had urged him to remain in Washington and that he had agreed to do so, at least until the summer

This renewed speculation on the probabilities of Wilson emerging as a compromise candidate for the main job of the Nelson-Bairch mix remains unsettled.

It is no secret that Wilson enjoys a warmer relationship with the Byrne-White-Hesse group than Nelson does, and the fact that the General Electric boss continues to remain in the capital despite his off-season with a leave, suggests that he may have a good reason for his latest announcement.

## Reverse Propellers Used as Plane Brake

Device fully as effective as wheel installations, says AAF Material Chief.

By ALEXANDER MCGUREY

Reverse propeller pitch for breaking airplanes, together with use of rail engine power, has proved fully as effective as the best wheel brake installations on airplanes in retarding ground roll, according to recent Army Air Force tests. It was reported last week by Col. E. M. McCoy, chief of the AAF Material Command Propeller Laboratory at Wright Field.

Discussing propeller development problems and future trends before the twelfth annual meeting of the Institute of the Aeronautical Sciences, at New York, Colonel McCoy, recognized as one of the foremost military propeller authorities in this country, declared that any general propeller type which does not include both full-feathering and reverse pitch will soon be classified as obsolescent.

**More Types Developed.**—He reported that full-feathering propellers for engines under 500 hp soon will be available in several new types developed by the AAF, supplementing the larger full-feathering propellers which have been in general use in this country for the last five years. The full-feathering prop is particularly desirable for small multi-engine private and feeder type planes because of the relatively poor engine-engine performance of these planes, due to high power loading.

While reports on frequency of feathering propellers on military aircraft are not made public, it is pointed out that airplanes in this country on the average, are forced by engine failure to feather a propeller approximately once in every 3,000 engine-hours, with a wide variation from 2,000 to 14,000 hours.



## AAF AND GERMAN FLYING SUITS:

A comparison of German high-altitude flying suits with those supplied to U. S. Army pilots shows radical differences in material. The U. S. high-altitude flying suit (left) is of soft-plyable leather, fully-lined, tapered and electrostatic-heated. Tubing designed from the pilot's helmet is an electrical connector for plugging in to heat the suit. Strapped on knee pad and pants. The German high-altitude flying suit (right) is taken from a Nazi pilot shot down over the English Channel. It has unusually large zippers to speed donning when the pilot is down over water. Electrostatic-heated, the German and his wife-like lining, interfere with a sense of tiny waves.

between various airlines using the same equipment. Still greater frequency of feathering of propellers on military aircraft can be expected he pointed out, due to battle damage to engines and propellers.

**Feathering Results.**—Increased performance made possible by feathering propellers made possible by feathering the propellers of insecticidal aircraft, over the performance possible at those propellers held constant to windmill or had been broken at operating pitch, has saved many aircraft in this war by permitting flight at higher altitudes and additional speed to maintain position in formation.

At least one bi-motor plane, he said, is reported to operate most effectively at relatively low speeds by feathering the propeller of one engine.

New designs of pitch control will feather a propeller in less than five seconds, he reported. Future trends are for still faster pitch changes,

which may require a new source of power, possibly taken directly from the engine itself, through a system of clutches and gearings for the very short time required. He presented a pitch range of from minus 30 deg to plus 90 deg as desirable for a modern propeller.

**Reverse Pitch.**—Using reverse pitch for braking would be a great improvement in today's military operations of fast landing mainwheel-type aircraft using icy, wet and muddy landing strips, he said. Large commercial aircraft and feeder-line planes of smaller size, he predicted, likewise will find themselves with breaking of great value. Findings of the new propeller braking tests disclosed.

Reverse pitch braking is most effective at higher speeds.

Wheel brakes will continue to be used in supplement to reverse pitch braking, because they are most ef-



WILBUR WRIGHT MEMORIAL CHECK:

Gen. M. H. Arnold accepts a check for \$3,243.16 for the Army Air Forces and Society as a memorial to Wilbur Wright, from Robert M. Mauck, center, chairman of the committee on arrangements for the Kitty Hawk 50th Anniversary Convocation, at Robert A. Lovett, Assistant Secretary of War for Air, looks on. The check represented net proceeds of the dinner given to Orville Wright in Washington on the 50th anniversary of the Wright brothers' first flight at Kitty Hawk.

reverse at low speeds and are needed for taxying.

Reduced tire and brake maintenance and replacement can be expected.

Reverse pitch braking is more effective than any known drag-type device brakes in retarding aircraft in flight.

Arranging possible uses for reverse pitch, which is already in use on some seaplanes, were listed.

Ground braking on all hard planes, wider taxying braking for seaplanes.

Air braking in slow dive-bombers and night fighters.

Increased offensive and defensive tactical maneuverability of fighters, and increased possibility of defensive evasion tactics by lightly armed observation and photographic planes.

Some of the large propellers required for the super-planes expected to be developed in the next few years may require as much as 60 to 80 hp. for the pitch change, he pointed out.

Reverse pitch braking, like most other aeronautical innovations, actually isn't new.

It dates at least as far back as experiments of the AAJ in 1921 on a Curtis Jenny, McCay said. The Jenny had no other brakes.

## Twin Coach 'Copter

Entry of a leading twin-passenger into aviation is indicated if the present plans of Twin Coach Co. materialize. The company disclosed that construction of an experimental helicopter which may be adaptable to the private-owner market or for use in public transportation is nearing completion at the Kent, Ohio, plant.

F. B. Fugel, president, and the company's success in surface transportation shortly after the last war. It has been converted to war production of plane parts and assemblies and expects to continue experience gained in aircraft fabrication and motor coach manufacturing, he said.

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## Major Fleet Elected President of IAS

Major H. M. Fleet, of San Diego, former head of Consolidated Aircraft Corp., has been elected president of the Institute of the Aeronautical Sciences for 1944.

Newly elected vice-presidents are Wallace E. Bell, vice-president in charge of engineering of the Boeing Aircraft Co.; William K. Bell, vice-president in charge of engineering and chief engineer of Glenn

L. Martin Co.; Elmer A. Sperry, Jr., vice-president of Sperry Products, Inc.; and G. M. Williams, vice-president of Curtiss-Wright Corp.

Bennett H. Bourdier, vice-president, elected executive vice-president; Cleve H. Cohen, director of the David Dunsmuir School of Aeronautics of New York University, is treasurer; Robert H. Doner, secretary, and Lester D. Gardner is chairman of the Council and president of the Aeronautical Archives.

## Photographic Maps Post-War Use Studied

Col. Finegold presented with first Fairchild award.

Wartime and post-war use of aerial photography in all air planes was discussed at the ninth annual meeting of the American Society of Photogrammetry in Washington. Col. Geraldine Finegold received the first Fairchild Award for making maps from photographs.

The award was donated by Sherman Fairchild, now chairman of the board of Fairchild Aviation Corp., who through his experiments during the last war in designing and improving between-the-lens shutter for aerial cameras opened a wide field for photographic research.

►Groundwork.—Aerial photography laid the groundwork for advancing air enemy defenses on all fronts, as was emphasized in a message from Gen. H. H. Arnold, commanding general of the Army Air Forces, which was read by Gen. James D. Nease, in Gen. Arnold's absence.

Pilots are invited to remember the airplane partly as an instrument to carry blackboards or as a highly mobile platform on which to mount machine guns or canons, Gen. Arnold said, but added "we should not let them obscure the many other functions of our air arm. Often a mission mounted on a P-38 has proved of greater importance than a P-51 with its normal complement of guns."

►Two-Angle Photography.—The meeting was attended by more than 100 members of the Society and was given a first-hand description of how the technical problems of bringing two-angle photographic data into relationship with a vertical view was solved by technique, a solution which has been of tremendous aid in planning attacks.

Col. M. C. Kaye, AAFC, reported successes had been achieved at 15,000 feet in night photography where clouds precluded daylight shots.

## Industry Sees No Immediate Shift To Jet-Propelled Aircraft

Engineers predict two years of military development, then ten years or more before commercial feasibility is attained.

Significance of successful jet propulsion flight and the unique operational characteristics of this type of airplane have been the subject of widespread analysis in the aviation industry since the original disclosure and the consensus of most engineers is that they anticipate no adaptation of existing aircraft to jet-propulsion nor refitting of existing engine types now in advanced stages of engineering.

Aeronautical engineers interviewed on the Pacific Coast by *Aerospace News* were generally agreed that a conservative viewpoint was necessary, with one of them forecasting two years for military service of jet propulsion and ten or more for commercial feasibility. Other quarters regarded the new estimates as too much on the conservative side.

►Supersonic Speeds.—The greater number decided that jet propulsion will boost top speeds immediately above 600 miles an hour, with wing compressibility being a major factor. However, one source was optimistic as speeds into supersonic, saying that the compressibility problem was induced in a large extent by propellers and propeller turbulence that are absent in jet craft.

Engineers are also considering knife-edge wings, to enter supersonic speeds with jet-propelled craft.

►Skin Friction.—Engineering opinion varies on the legitimate question of whether skin friction at high speeds suggested by Jet Arnold, builder of the new craft, Kelley participated in a recent discussion.

The consensus was general that the gasoline engine industry has no fear that jet propulsion will halt for a number of years production and refinement of gasoline engines.

Meanwhile, additional information released by the War Department re-enforced belief by pilots who have flown the new jet-propelled airplane that smoothness, simplicity and economy of power are important characteristics.

►New Chapters.—Lawrence D. Bell, president of Bell Aerocraft, which builds the twin-engine craft, says "development of the new fighter which flies without a propeller opens up what promises to be a completely new chapter in the story of man's victory over the air."

that it will have no effect on the aircraft engine industry's job. Wright engine power such aircraft as the Flying Fortress, Mitchell B-25, B-26, B-29, Helldiver, the Martin Marauder and Super-Fortress.

►Present Use Limited.—Reviewing the present use of jet-propulsion, details about jet-propelled planes, Wright engineers said jet propulsion's intended use was confined at present to interceptor-type planes, planes in which high speed and fast maneuvering are all-important, with range and fuel secondary.

They said that, while the principle of jet propulsion had long been known in technical men, its practical application to aviation had begun to appear only within the last few years. They described the ultimate uses of jet propulsion as unpredictable, and left that development work definitely would go along for a number of years before an application is advanced which will make it a competitor with internal combustion engine types.

►High Speed Developments.—These engineers said jet propulsion's application to interceptor-type planes was a result of developments not only in jet-propulsion techniques alone, but in progress in aircraft design helped bring about the successful jet propulsion pursuit. This improvement in aircraft design was described by these techniques as theoretically making possible "aircraft speeds near the critical range."

## Pilot's Reaction to Jet Propulsion

How it feels to fly a jet-propelled airplane is set forth in the comments of Frank H. Kelley, an assistant to Lawrence D. Bell of Bell Aerocraft, builder of the new craft. Kelley participated in a recent discussion.

"In the smooth ride I've ever experienced in any plane," Kelley said. "The first time I climbed into the cockpit I was naturally a little nervous about flying a jet plane, but as I got into the new flight I was soon flying it like any other plane.

The consensus was general that the gasoline engine industry has no fear that jet propulsion will halt for a number of years production and refinement of gasoline engines.

The absence of vibration has also contributed to a much greater tendency on the part of pilots in the plane to depend upon their instruments in flight, and this flying is excellent. At the same time, Kelley said, there is very little noise in the cockpit from the engine, the pilot may use super-sensitive instruments to learn the story of the engine's operation.



## Private Flying Program Expected To Taper off Post-War Production

Civil aircraft believed likely to increase to half-million in next five or six years compared with present total of private airplanes of approximately 25,000.

The ability of the manufacturer to produce and sell a product which has utility measured in terms of economy, safety and ease of operation in competition with other forms of personal transportation will be an important factor in the future operations of personal aircraft manufacturers, whose views on post-war questions are beginning to take definite form.

At the opinion of many aviation observers that private flying may well hold the key to keep aircraft production from tumbling to a disastrous level and there are those who believe we can run our civil aircraft up to around half a million within the next five or six years as compared with the present total of approximately 25,000.

**Cutbacks**—With cutbacks in aircraft production schedules this year

on trainers, liaison and other light planes, the personal aircraft manufacturers are faced with inordinate problems which, while related to those of industry generally, still require a different approach and a different treatment in the opinion of John E. P. Morgan, manager of the Personal Aircraft Department of the Aerospace Chamber of Commerce.

In addition to selling a utility product in competition with other forms of personal transportation, Morgan points out that there must be a willingness on the part of the public to help create necessary landing facilities, in the form of small private airports, community airports, and county, state and federal developments in the form of landing strips and other landing facilities.

**Challenge**—Further, Morgan be-



**Personal Plane Expert:** John E. P. Morgan, who is directing the program of the Aerospace Chamber of Commerce to further the development of personal aircraft, is shown here in the post-war years. Morgan is manager of the Chamber's Personal Aircraft Department, having long been a leader in the private aircraft field.

lieves there must be cooperation by the public in general and public regulatory bodies in particular in efforts to keep or reduce regulation to a minimum that will be in the public interest.

Morgan sees these broad principles as a challenge to the personal aircraft manufacturers and he calls a word of warning that all concerned must talk, think and design an "engineering" utility of products, together

with the promotion of landing facilities, "the thousand dollars—not the ten billion dollar kind."

**Post-War Plans**—He believes it necessary to make private or personal flying as free from regulation as possible within the bounds of safety. He adds that while the industry can not assure that the public will be ready to take to the air more distantly in large numbers, despite the vastly increased public interest and that which will be naturally engendered by the return of airmen now in military and Naval service. The industry will have to be something to offer and there will have to be landing facilities available.

The problem of the disposition of surplus aircraft, a complicated and many-sided question which a large part of the aircraft industry will have to solve, will not affect the manufacturers of personal aircraft to any great extent, in Morgan's opinion.

**Grasshoppers**—The Grasshopper-type planes used by the Army will have little private use after the war is over and with the cut-back to war emergency production programs, the few planes available for private use after the war will not touch the potential commercial market.

While reparation will not present so great a problem to the personal plane manufacturers, all have new types in mind which will require some re-tooling, new jigs and other equipment.

**Conversion**—In Paris—Many aircraft companies, whose production programs have been curtailed, are turning to parts, as exemplified by Cessna Aircraft which recently announced its production facilities were being converted to manufacture of emergency parts for tactical bombers.

Now our twin-engine training planes, which Cessna has been making, as well as need for utility cargo planes, is declining. This will turn these facilities as well as those of other companies to different uses but it is not expected to affect their overall working programs to any great extent.

**Union Labor Progress**—There has been little reaction from the industry to the urging of Richard T. Frankensteen, director of the CIO United Automobile Workers association department and vice-president of the union, for mass production of 1,000,000 or more light passenger planes to be sold at less than \$1,000, but the personal plane manufacturers are studying all angles of future production.



### FUNELAGE SECTIONS OF LIBERATORS JOINED:

Here is the Ford Willow Run plant, working on B-24's, as an unusual picture of the manner of top and bottom sections of one of the Liberator four-engine bombers, now in mass production. Below, the huge tail piece is joined into place, dropped free as overhead crane



### FORD'S NOVEL FUELING SERVICE:

A nearly completed B-24 is shown taking on 100-gallon fuel at Willow Run's specially designed fueling station. For commercial use, planes could run under the bridge, get gas in both wings tanks simultaneously, while passengers and cargo were handled.

### Douglas Proposes Tapering-off Policy

Douglas plans merely to close plant at end of war.

Douglas W. Douglas, in a discussion with an employee on the future of aviation, declared he personally intends to remain in the aircraft industry and hopes to keep as many as possible of those employees who desire to remain with the company.

He referred to the much discussed statement recently attributed to him by Time, "Shut the damn shop up."

and brushed away what he termed the inaccuracies and misconceptions attached to it.

**Douglas Statement**—In this connection, Douglas was asked: "Many of us here (employees) would like to stay on after the war. Can you give me some idea of what might be ahead for our company? For instance, people are saying that your solution to the post-war problem is to 'Shut the damn shop up.'"

Douglas' reply to this question, published in the Douglas Monthy Airplane News, was: "No truth whatever. The statement to

which you refer was part of an interview on many subjects, but only part of my remarks were quoted. The result, of course, was misleading. I was asked by the reporter what we would do if the government would not give us without warning canceled all our contracts. I told him I was confident that nothing like this would happen, but that if it did, there is actually only one thing we can do. If there is no work for a plant, you have to close it up until something is found to keep it in operation.

**Revised Program**—"That's not a plan—it's a condition. Planning is something else again, and we are not neglecting that either. My own idea is that, when the time comes, contracts should be tapered off and employees released gradually at a rate which will give them an opportunity to find their way back into normal business and industrial life. To provide for this, we have a plan of readjustment, which I believe is the government's plan for post-war bases. This would be in the form of an incentive pay increase in wages, based on increased production and length of service. It would be cumulative and payable only after the war, or on final termination of employment."

## New P-47 Props

A substantial number of Republic P-47 Thunderbolt fighters will be equipped this month with Hamilton Standard four-bladed hydrodynamic propellers.



DOUGLAS "DAUNTLESS" LAUNCHED:

This plane appears to be taking off from the floor of the assembly building at the Tulsa plant. Actually it was being launched from the end of the building by an overhead crane after completion, one of many being turned out by Douglas Aircraft.

This equipment is being installed and the new blades will be those on Grumman P-47 fighters, except that there are four instead of three. With this installation, four of our newest fighters will be equipped with Hamilton Standard propellers, the P-47 Vought Corsair and P-47 for the Navy, and North America's sensational new P-51 Mustang for the Army in addition to the Thunderbolts.

## Plane Firms Vie For Output Records

Convair production tops all in weight of planes produced

In measuring aircraft production, it all depends on the yardstick used, whether by single plane or by a percentage comparison of plane to total output. On the basis of production figures for the aircraft industry for 1943, compiled by the Aircraft Production Board, Consolidated Vultee Aircraft Corp. is the world's largest producer of aircraft.

Tom M. Gandler, chairman of the board, and the company last year delivered more airplanes by number and by weight than any other manufacturer and he cited a telegram from the Board, which congratulated the company on its 1943 output and which disclosed that "Consolidated Vultee delivered more than 126,890,000 pounds, including spares, compared with 115,066,000 pounds delivered by the second largest producer."

Convair's largest producer delivered 78,000,000 pounds. **Measured By Weight**—Here, the weight of the airplanes produced is the yardstick, but Gandler added that "Consolidated Vultee in 1943 delivered over 12 percent by weight, and over 16 percent by weight of all aircraft built in the United States."

**Production Brings Bombers**—He explained that "the difference between numbers and weight is percentage figures is due to the fact that the company produces more heavy four-engine bombers than any other manufacturer."

The apparent conflict of manufacturers' claims of various companies is due to the method of computation and actually all claims advanced are correct on the basis used.

**Other Records**—Grumman, for example, in its November figures, with its 660 aircraft, claims it the world's largest manufacturer of combat aircraft, and constant in the spans, Northrop output was 683.

Republic, in its two photos had record breaking production in November and December, and was congratulated by WPAF for "having produced more airplanes of a single type than has ever been produced by any other single aircraft manufacturer in a single month." Republic does not have to do anything with its great P-47 Thunderbolt fighters.

**Bell and Curtiss-Wright**—Bell Aircraft and Curtiss-Wright were well up in the month's production and in the overall output Douglas was running close to Consolidated.

## 20,000 P & W Motors Produced by Ford

More than 20,000 aircraft engines of Pratt & Whitney design have been produced and delivered to the Army by Ford Motor Co. since Pearl Harbor.

The engines, Ford Motor said, although built to Pratt & Whitney specifications, were subjected to changes in production methods to adapt them to mass assembly.

**Developments**—Among these developments, Ford said, were centrifugal casting of cylinder barrels (convergent at the top); parabolic and elliptical, "honeycomb" of small parts to manufacture to other Ford facilities, and designing of multiple-purpose machine tools.

The 3,000-hp radial engine manufactured by Ford is used in such aircraft as the Republic P-47 Thunderbolt, the Martin B-26 Marauder bombers, and the Curtiss C-46 Commando transport.

## "Helldiver" Modified At Allentown Plant

First planes expected to be completed this week.

Mobilization work on the Navy's new dive-bomber, the Curtiss-Wright SB2C Helldiver, is now well advanced, a plant performed at the Allentown division of Consolidated Vultee Aircraft Corp.

R. J. McMahon, division manager, said an unapprised number of these planes which distinguished themselves in their initial combat actions in the Pacific, have been flown to the Allentown plant and are now undergoing modifications.

**Fir First Planes Ready This Week**—It is expected that the first completed planes incorporating the latest changes in design and equipment will have been delivered battle-ready by this week. Design of the Helldiver, it was recently revealed, permits it to be launched on the Navy's baby flat-tops, and the Navy has permitted equipment that improves safety in design and equipment have been made since the Helldiver was first introduced during which plane "weight deviations on the energy," in the words of



NAVY PARACHUTE TESTER:

Stirring view of the new parachute testing tower built for the Navy by Pioneer Parachute Co., enabling engineers to test chutes under speeds comparable with those attained in actual flight when armies are forced to bail out. Specially-designed recording device give engineers complete data and important information on every stress of actual performance.



REVISED FAIRCHILD UTILITY CARGO PLANE:

This revised utility cargo plane has been completed by Fairchild Aircraft Division in Hagerstown, Md. Derived on the UC-11K, it is similar to the four-place UC-11A, but is powered by a Ranger 200 horsepower in-line engine instead of the 145-hp Warner radial. Wing

area is 192 square feet, with a span of 35 feet, 4 inches. The overall length has been increased to 25 feet, 10 inches. General construction, interior arrangement and other details are identical with those of the UC-11A. The forwarder, which will continue in production shortly,

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Butt of two great petroleum advances—the TCC process and a new lead catalyst—Flying Horsepower adds hundreds of miles range to bombers, gives fighters greater maneuverability.

It's by far the greatest gasoline development of this war, a practical reality for peacetime application.

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Used in the aircraft industry for crucial engine break-ins—a new Aero Mobiloil to match the new Aero Mobilgas.

Latest development from Sweeny-Vacuum's 26 years' lubrication experience, the new oil has already proved its exceptional wear-resisting qualities.

In greasing, flight operations, it has kept engines free from ring slippage deposits, and reduced wear to a minimum.

New Aero Mobilgas and new Aero Mobiloil combine to furnish hard pressed Flying Horsepower for the planes of Today—and Tomorrow.

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## COMMENTARY

## Long-Range Escort Fighters Ease Work of Busy Bomber Crews

Allies eliminate good part of costly toll of daylight bombing by providing defensive cover all the way and back.

Analysis of the recent air battle over the heart of Germany during which heavy bombs were inflicted on three important aircraft factories—Focke-Wulf 190s, Messerschmitt Bf 109s, and Junkers twin-engine fighter-bombers (Bf 109Gs and He 111s) clearly indicates that no deep daylight penetrations will be made without long-range fighters running interference all the way. Some light is also thrown on the shuttle or relay method of carrying out these vitally important escort missions.

**Early Daylight Missions**—In the first weeks of the war (September, 1939) the Royal Air Force Bomber Command sent its Blenheims, Wellingtons and Whitley bombers in daylight raids over Germany, but soon gave them up as altogether too costly. One year later the Luftwaffe tried it over England, sending over its last but lightly armed Heinkel and Dornier bombers, escorted by Bf 109Gs, He 111s and ME 109s.

The rugged, heavily armed Hurricane and Spitfire (the latter also having a slight edge in speed), instead of dog-fighting with the fighters, related to be drawn into combat and clashed directly with the bombers, inflicting such devastating losses the intent to knock out the R.A.F. and bomb Britain into surrender had to be given up.

We are now witnessing the battle of Britain in reverse, with the American strategic bombing forces carrying the ball. Fortresses are bombing the ball, Fortresses and Liberators running for touchdowns, with Thunderbolts, Lightnings and Mustangs swooping over home territories.

**First American Raids**—Two years after the battle of Britain, the first

daylight raids over occupied enemy territory were carried out by Fortresses of the Eighth Air Force. The only available escort force were squadrons of Spitfires, and both British and American pilots turned in an outstanding job with this ship, especially when larger numbers of the high altitude Mk IX model became available.

The serious limitation was range and the Spits were only able to escort the Fortrees a fraction of the way. It was after they had to turn back and the Forts were going along that waves of FW-190s and ME-109s came in for their savage attacks. For a time it appeared that the mounting ruggedness of the American heavy bombers, plus the skill of the gunners and effectiveness of the 50-millimeter high-velocity guns might give them the edge over German defense.

**Developments in 1943**—Through the winter of 1942-43 the Eighth was obliged to carry on with a scarce token force while the Nazi High Command sharply improved their defense equipment, techniques and tactics. By spring, American fighters of the Eighth Fighter Command were beginning to carry out escort missions and soon proved themselves more than a match for the Luftwaffe's best fighters, especially at high altitude. Range, while better than the Spitfire's, was still a limiting factor, the earlier missions extending only to such points as Antwerp.

By late July, however, auxiliary gas tanks enabled the P-47s to



RCAF Discloses Salvage Operations: Forcing a stream bed after getting this Ventura bomber fuselage out over a 14-mile bush road cut through virgin wilderness is

typical of the problems faced in salvage operations of the Royal Canadian Air Force, which have been published only recently.

make a round trip of some 600 miles to meet returning Fortress formations deep inside Germany and escort them to safety at the time and speed needed, when the news of the big bombing raids originated from the stream of fighters that went to the target, dropping their eggs, and bringing their way back with damaged ships, guns (and sometimes gunners) out of action, and ammunition low. A few weeks later (Sept 27) they were able to accompany the B-17s all the way on a 650-mile round trip to Krefeld and back in the first "bad weather" mission, on which Pathfinder planes dropped British marker bombs to locate the target.

**Advantages of Escort**—Experience has proved that several definite advantages are derived from all-the-way-inter-and-back escort. Bombing accuracy was greatly improved. Bomber losses were held down to a minimum. Even periodic escort on long-range objectives saved the bombers' ammunition and fighting energy of the gunners for the part of the trip when they were on their own, and meeting the returning bombers and getting the fighters to protect the supplies. Aircrew morale was given a terrific boost. A flight of Thunderbolts, Lightnings or Mustangs is literally the most beautiful sight in the world.

**Long-Range Fighters in Heavy**—After an excellent record of escorting the Fortresses of General Doolittle's Strategic Air Force in the Mediterranean (now the Fifteenth), an improved model of the Lightning, with even longer range, has

been escorting the British-based Forts and Liberators since October. Newest member of the team is the Merlin-powered Mustang, traveling fastest and farthest of all, in service since December, with a brilliant part in the triple-target mission of Jan. 11.

On deep penetration missions, several miles of fighters have to be used, starting with the Thunderbolts,

then the Lightnings and finally the Mustangs to the target and partly way back. In withdrawal escort, Lightnings take over when the Mustangs are out of ammunition, then the Thunderbolts, and sometimes a final relay of Spitfires, nearest the home base, although these are now regularly used in escorting the medium-range Marauders. It's quite a complex operation. Now, as never before, the success of our offensive is in the hands of the fighters.

—NATHANSON

## Salvage Work Saves Many RCAF Planes

Recovery of aircraft persons difficult, aircraft engineering problems

By JAMES MONTAGNES

Royal Canadian Air Force salvages many aircraft brought down in the northern bush or in other isolated areas, and either uses the parts of these aircraft for overall work on other planes or again makes the aircraft serviceable. A few details have been released.

Ventura bomber was forced down on a small lake in eastern Canada in early spring, sank to its wings. Radio brought rescue for the crew and a salvaging team to bring the plane out, even though it took 10 days to reach the scene. The plane is 94 feet long and from the first were used to keep the plane from sinking in the bottom of the lake. The armament and engines and then the wings were disassembled, towed to shore at the ice, then the plane was pulled ashore. Meanwhile the Canadian Air Force had cut a road through the virgin bush. Tractors brought the plane and its parts out over the bush road, five weeks after it had landed on the lake. Within a short time the aircraft flew again.

**Mountainous Salvage**—A Hudson bomber forced down on a mountain side in eastern Canada had its engine removed, and was then lowered down the mountain side for three miles to an ice-covered lake, where the engine was reinstalled and the plane took off under its own power. A Canadair aircraft loaded with depth charges, sank in water somewhere off Newfoundland. In rough seas the RCAF salvage crew grappled for the aircraft, and brought it to the surface without the depth charges being disturbed.

A twin-engined Avro bomber was forced down on an ice pan off Newfoundland. The crew was rescued without much difficulty. Then aircraft kept the ledges with its plane in view till currents drove it to shore. After that the Avro was brought ashore and made to fly again.



PLANES LEAVE VAPOR TRAILS IN SUB STRATOSPHERE:

Vapor trails left by warplanes of the United States Eighth Air Force look beyond Flying Fortresses is this new AAF photo. The curved trails leading upward were made by the fighter escort on a raid over the heart of Nazi land. Machine guns are visible bursting from the nose of the leading Fortress.

NOT JUST  
SHEETS—

BUT FINISHED  
PARTS—



PEELING A PROSPECTIVE PLANE SKIN. With this aluminum sheet be shaped as needs or, will the plane manufacturer who ordered it save valuable man-hours by having it prefabricated into a complete plane part by skilled Reynolds workers?



NO LOSS TIME when you use Reynolds Prefabricated Plane Parts. Completely finished parts can go right on the assembly line as soon as they are received at your plant. This modern method, pioneered by Reynolds, saves you manpower, plant space, time and scrap.

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From our global battlefronts come the never-ending planks, "Give us more planes, better planes" . . . "Deliver them faster." In the face of this, fabricating aluminum sheets into plane parts in your own plant takes manpower you can ill afford to spare.

By using Reynolds prefabricated plane parts service you can use all of your manpower to build planes.

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Reynolds finished parts saving thousands of man-hours.

Reynolds finished parts saving thousands of man-hours.

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Among the many utility services performed by Lawrence Auxiliary Power Plants aboard America's long-range bombers is the operation of bomb bays, galleys, hot plates, lighting, heating and ventilating equipment, main engines, starters and communications systems.

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## TRANSPORT

### CAB Examiner Approves Northeast's N.Y.-Boston Route Application

Report of Thomas L. Wren cites local nature of traffic and benefits to be obtained from competitive competition with American,

By MERLIN MICKEL

The cause of the smaller air carriers has been furthered with the recommendation by a Civil Aeronautics Board examiner that one such line be allowed to participate in the important New York-Boston route. Examiner Thomas L. Wren proposed to the Board that Northeast Airlines be permitted to share the route with American Airlines, one of the "Big Four" and the only carrier now authorized between these two points, and that American be allowed to add a new intermediate point to its own route.

He gave his recommendations to the people of Colonial Airlines, another of the smaller operators, that it be granted a leg from Boston to New York, but concluded that its application, along with those of Seaboard Airways, Eastern Air Lines, Trans-continental & Western Air, and United, should be denied. An earlier attempt by Pennsylvania-Central Airlines to get into the case was unsuccessful.

**Decades Landed**—Northeast, which also would receive some intermediate stops under Wren's proposal, immediately hailed his report as "the most important development in the air transportation history of Boston," and said it was plainly a step to orderly development of the Company's air transportation pattern.

The recommendation as to Northeast was of interest in view of the contention by some smaller airline operators that economic balance exists between small lines and large, with the few latter participating in 82 percent of the business. Wren left the door open to further route franchises in the New York-Boston segment, however, with the observation that "If, in the post-war period, it becomes apparent that the traffic in this area equals the hopes of the applicants or expands beyond that, then further operations into the territory can be authorized in the light

of conditions as they exist at that time." He concluded that authorization of Northeast to operate between Boston and New York would constitute an "orderly expansion of our transportation by forming an integrated regional New England operation and at the same time prevent that carrier with needed financial strength."

**Recommendations** — Specifically, his recommendations were that Northeast's certificate for AM 27 be extended to include Lawrence, Worcester, New Bedford, Hartford, Providence, and New York-Newark, that Boston be designated an intermediate point, and that either a franchise that Northeast has authorized to operate nonstop between all points on the east leg (Boston-Peabody-Canton) of 27, that American's certificate for AM 16 be

extended to include Worcester, Waterbury, New Bedford, New London and Attleboro-Brockton-Taunder as intermediate points, that Worcester and Boston be included in its AM 21 as intermediate points, and that other applications be denied.

Examiner as extended hearings in the route case showed clearly that traffic to and from Boston is primarily local in character, Wren's report stated. Citing durability of a pattern giving "appropriate place to small intermediate carriers in the New England market, he asserted that, because of the local character of traffic between New York and Boston and needs of local carrier applicants for revenue, such an operator could be expected to put forth more effort to develop and compete for local traffic than would a long-haul carrier. "It would appear desirable," he said, "to have an impartial local carrier, since the authorization of a long-haul carrier and the extinction of another would place those excluded at a competitive disadvantage."

**Competition**—Although traffic potential between New York and Boston is heavy, Wren advised against more than one additional carrier between them. Not only would granting the route to more than one smaller carrier tend to limit benefits from the additional mileage, but possibilities of destructive competition would be increased. The route is comparatively short—184 miles.



ARMY PLANES TO MICHIGAN CAP:

Miss Army planes have been assigned the Michigan Civil Air Patrol in the interests of Army Air Force combat procurement. Capt Howard Harting (left), group commander in the Michigan wing of the CAP, is shown with Lt. Don Denison, Michigan wing pilot, at delivery of one of the ships.

Northeast's present route mileage is 889 miles, Colorado's 335. The hearings disclosed that 24 percent of Northeast's business moves through Boston to points south, the examiner found. Northeast estimates it will need about a third of the total estimated business between New York and Boston, if the Board grants the new route.

"Extension of Northeast is New York," Wren said, "would give the carrier access to an area containing almost 15 percent of the population of the Nation and extend its present system to a natural terminal point. With this addition, Northeast would be in a position to develop into a strong regional New England transportation system which would constitute an important step in making that carrier commercially self-sufficient."

**Revenue.**—Northeast said at the hearings it thought American needed the stimulus of competition on AM 16. American said it favored competition where it could bring better service, not distance, and concluded with Northeast that the New England area is an entity where density of population, industrial area, and intensity of commerce make for unique transportation problems. When concluded that the New York-Boston route "had sufficient traffic to support competing service without unreasonably increasing of total operating cost and without impairment of the financial status of the existing carriers" and that such competition "would not be wasteful or destructive."

His study of revenue estimates submitted by the various applicants submitted the assurance that "it is apparent that the service between New York and Boston proposed by any of the existing carriers can be operated to yield a profit or a profit before maximum compensation."

**Equipment Estimates.**—Northeast projected its estimates on use of CW-30's (Curving twin-engine ship), DC-4's and DC-5's, basing the last on its operating experience and the others on manufacturer and contracted operating data. For CW-30 equipment, additional revenues were estimated at \$2,615,604 per year, or \$1.16 a mile, and additional expenses at \$2,386,623, or 77 cents a mile, with a net income of \$228,981, or 39 cents a mile. Revenue from DC-4's was estimated the same as on CW-30's, with expenses at \$2,827,259, or 88 cents a mile, leaving net income of \$858,343, or 21.8 cents a mile. With DC-5's, revenue was estimated at \$3,638,663, or 89 cents per mile, and expenses of \$3,871,618, or 88 cents a mile, leaving net income of \$960,250 or 22 cents per mile.

American estimated that, with the additional service it proposed on Routes 16 and 21, its additional annual passenger revenue would amount to \$631,756. Total revenues were estimated at \$12,914,114 and express revenues at \$11,131. Additional expenses on 16 were figured at \$421,890 and on 21 at \$88,035, a total of \$557,034, leaving a net profit of \$67,764 estimated for the two routes.

The history of the central issue in

connection with Northeast was discussed at some length in the examiner's report. Last August the Board found that Northeast was controlled by the Boston and Maine, Maine Central and Central Vermont Railroads. Wren, however, noted, however, that subsequent developments have left the railroads no longer in control and that this "has disappeared from this proceeding."

## Extension of Civilian Pilot Training Urged

Randolph sees program as essential investment.

The federal government has a responsibility to continue its sponsorship of civilian pilot training, says Rep. Jennings Randolph of West Virginia, and he is confident that 30 to 40 million dollars a year will not prove too much for the purpose, if it is wisely spent.

Randolph told the National Association of Colleges and Universities in Aviation Training that the past five years has seen a well-advanced investment of approximately \$250,000,000 in a pilot training program for 250,000 young men under Civil Aeronautics Administration supervision. Representatives of about 100 institutions from seven mid-western states gathered at Kansas City, heard him speak.

**Economy.**—The West Virginian examined Congressional stress on economy will increase, and insurance must be had that expenditures are justified. But "necessary funds will wisely be provided if we fully realize the dividends paying investment which has been made in this type of governmental leadership."

He believes the people will support a pension plan, through the educational system, that would create a "reservoir of flyers" if another emergency arises after the present war.

## Air Shopping Service

An American Airways talk of a shopping service by air operated by its Mexican affiliate, Compania Mexicana De Aviacion, whereby important machinery and repair parts are being shipped to Mexican industries in hours rather than the days that would be needed in surface transportation. The service was installed in 1953 as a facility for persons desiring items from Mexico City but without commercial contact there.

AVIATION NEWS • January 31, 1946

## Plane-Ship Travel Analyzed in Study

Overseas air lines may approximate seafarers' runs in several years, ATA research chief says.

Please may have a slight edge over seafarers in their competition with the latter after the war, despite inability to provide some luxuries ship travelers enjoy.

This is the belief of Dr. Lewis C. Sorrell, as outlined in his current report on the possibilities of overseas air passenger traffic. Sorrell is research director at the Air Transport Association. The report, sent hands of member airlines, reflects only his own views.

**Competition.**—In his consideration of competition with seafarers, he is subject of primary interest now in view of the increasing interest on Capitol Hill, where members of the House Merchant Marine Committee have been advocating that seafarers operations be permitted to enter air commerce. Sorrell discusses the question whether in the future the airlines can penetrate the overseas travel market.

He says, "regard the combination of railroads and airways and better together, with seafarers conceived to approach if not under-cut railroad passenger fares and second-class fares, as virtually assuring the diversion of these types of travel from ship to plane."

**Eventually.**—Others believe this may happen eventually, but think it may take more time to accomplish. If domestic air transport in the course of some 15 years of growth has only been able to penetrate the diminished volume of rail passengers—first-class travel, to the point where air is one-half or one-third of pre-war civilian travel of that magnitude, it is likely that overseas operations in five years will even exceed from the design of the ocean liner."

**Still others** feel, he finds, that the combination of transportation, diversion and relaxation, plus safety, based on the surface liner, will keep a hold on a large portion of traffic despite lower speed and the clearer rates that the future may bring.

**Economic Merit.**—On basis of economic merit, he decides, competition between the two will be a matter of public acceptance in terms of fares, value of time saved, reaction to safety records, and desirability of spending a vacation within various countries as opposed to the relaxation and sociability found on passenger ships.



FAMOUS TEXAN GETS AMERICAN PIN:

Angus G. Carter (left), Fort Worth, a member of American Airlines' Board of Directors and long an aviation enthusiast, received a 25-year service pin from A. M. Karpis, American's president, at the airline's Pioneer Dinner in Dallas.

Sorrell suggests, however, that "within the next three years, air will have taken over 40% of air transport; these will be the ramifications of sea." One disadvantage of the surface vessel is the necessity for dredging, cleaning and arranging passengers, and taking care of the crew—a considerable expense because of the crew's—considerable experience because of the time element. "And it must build into, transport and operate all the utilitas which a community requires, most of which move little to air transport."

Sorrell thinks that for a time plane designers and operators may have to sacrifice some weight and space to such necessary facilities as lounge, bars and "even short promenades." But every addition to weight and space carries severe cost penalties in the air as well as long distances and must limit such facilities to a certain proportion as compared with the efficiencies of heavy ocean liners. Air transport should continue to develop in market prestige—advertising features."

**Modern Trend.**—Sorrell reaches the conclusion that "if past record of the American consumer is a guide, the passion for speed, plus modernism and sanitation, as well as economy of employment of time, is likely to gain the day." Notwithstanding which it is quite conceivable that the ocean liner of moderate speed and comfort, combined with economy, may continue to enjoy in substantial volume the relaxation type of travel."



TWA DOES REPAINT JOB:

Transcontinental & Western Air is sacrificing the familiar slogan "The Transcontinental Line" as its first for the war effort. As part of the Fourth War Loan drive, in this publicity picture Miss Ruth Stirling, TWA hostess, appropriately holds a war bond in her hand.

# ROCKET MAIL ROUTE ... 8 MILES UP?

*The Makers of Fafnir Aircraft Ball Bearings Present  
Number One in a Pre-Showing of Fafnir Flight Possibilities—with Models and  
Settings Created by Norman Bel Geddes and Company.*



Up to the stratosphere in seconds and around the world in minutes, the high-speed Jet Propulsion Mail Plane may from the cold and heart-stirring heady speeds some 40,000 feet above earth into

aviation cannot afford to overlook advanced ideas. As an industry, it has turned to many daring prophecies and successful achievements that it has earned a leading position in world progress. As the pioneer manufacturer of aircraft ball bearings, Fafnir has seen this evolution achieve new performance records in every type of modern aircraft.

the "touring dreams" of the future. Extraordinary speed would result from jet-propulsion—a principle that has been used already in certain aircraft.

With our colleagues in the industry, Fafnir looks and thinks ahead toward the great aircraft of tomorrow, by means of which communication and trade will move at a new, fast tempo around a shrinking world. Fafnir will produce the specialized bearings that will speed these developments. The Fafnir Bearing Co., New Britain, Conn.

**FAFNIR**  
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*for Aircraft*



## Two Department Stores Apply To CAB for Helicopter Permits

Mandell Brothers of Chicago, and Hecht's of Washington, seek air route certificates; other applications filed during week.

Two applications for Civil Aeronautics Board approval of interlocking relationships considered by the formation of Airlines Clearing House, Inc., organization to clear interline ticket sales accounts, were filed with the Board last week.

One was for Thomas F. Armstrong, secretary, treasurer and director of Eastern Air Lines, the other for L. B. Judd, assistant secretary and director of Delta Air Corp. Both are directors in the new clearing house.

♦ **Delta Air Lines.** Store Route—Two well-known department stores have issued recent applications for exemption certificates. Mandell Brothers of Chicago and the Hecht Co. of Washington proposed to use helicopters. Mandell's asked a permanent certificate for scheduled transportation of persons, property and mail over six routes in Illinois, Wisconsin and Indiana, going out from Chicago to Milwaukee and Elkhorn, Wis., Rockford, La Salle and Winona, Ill., and Elkhart, Ind. Hecht's also wants a permanent certificate for non-scheduled transportation of persons and property on seven routes out of Washington to Westchester, Darien,

Green, Wayneboro, and Stanton, Va., Roanoke and Point Lookout, Md., and Rehoboth Beach, Del.

Among the airlines, Pennsylvania Central asked in three applications for a new route between Washington and Montreal, Canada. One would extend PCA's AM 34 from Buffalo to Syracuse, N. Y., via Rochester. Another, to Washington, Md., would be for a route between Washington and Syracuse via Baltimore, Wilmington, Philadelphia, Allentown-Bethlehem, Wilkes-Barre-Binghamton and Binghamton, N. Y., via Binghamton to Ottawa. PCA previously applied for a route to link Washington with Ottawa.

♦ **Alternative Extension.** Mid-Continent Airlines, in addition to its earlier application in Docket 655 to extend AM 38 from Tulsa to New Orleans, adds an alternative extension from Kansas City to New Orleans via intermediate points in Missouri and Illinois, and the third from Cedar Rapids, Iowa, to Cedar Rapids via points in Mississippi, Arkansas, Tennessee and Louisiana.

A similar operation was requested by Kansas Aviation Co. of Manhattan, Kan., another training school outfit, for five routes, one from Manhattan to Kansas City, one from Goodland, Kan., to Denver, and three circle routes out of Manhattan via points in Kansas and Nebraska, the latter going as far as Omaha.

♦ **Exception.** Pan American Airways applied for an exemption after relinquishing Willard, Columbus, via intermediate point between Ciudad Trujillo, Dominican Republic, and La Guaira, Venezuela.

Union Carbide of San Antonio seeks scheduled transportation of passengers, mail and express by helicopter over Texas routes between Brownsville and El Paso, Brownsville and Wichita Falls, Alice and Corpus Christi, Alice and Laredo, San Antonio and Del Rio, Stephenville and Dallas, Stephenville and Ft. Worth, and Stephenville and Amarillo, via intermediate points.

South Central Air Transport of Perryville, Ark., applied for exemptions, phone and pickup scheduled transportation of passengers, mail, freight and express, on routes between Kansas City and Shreveport, De Queen, Ark., and Shreve-

port, West Virginia points and Pittsburgh, between Kansas and Pittsburgh via West Virginia points, and between Pittsburgh and Philadelphia.

♦ **Circles Route.** Colonial amended its application in Docket 1116 to ask an additional circle route from New York, via Pittsburgh, Columbus, Dayton, Anderson-Monroe-New Castle, Ind., Chicago, Detroit, Cleveland and Niagara Falls.

An amendment from E. W. Wigginz Airways of Norwood, Mass., to Docket 399 asking service between Boston and Providence via intermediate points added a route between Newport, R. I., and Block Island, R. I. Wigginz Airways of New York would extend its route to Boston, Mass., to Boston, via Boston, as an intermediate point on the route between Rochester, N. Y., and Washington it asked in Docket 1048.

♦ **Columbus, Mo., Line.** Wigginz, in the original pilot training program, added a service to link Washington with Ottawa.

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port to range from airports and the Air Mail to post-war probabilities and policies, with any committee recommendations to be submitted to the board after the meeting.

## Air Officials Named In Two States

Massachusetts and Georgia report new state air officials. Massachusetts has a new Aeronautics director as well as a new chairman for its Aviation Committee. John F. O'Farrell, Arthur H. Tally, Jr., of Cambridge, was appointed. Thomas D. Cabel, previously director of aeronautics, was re-appointed as committee chairman from Gov. Leverett Saltonstall, not long ago.

Tally is a Civil Air Patrol major, and has been executive officer of the Massachusetts CAP wing. He is giving up his job as securities analyst for a Boston investment trust to take the new post in February.

♦ **Statewide Sullivan.**—Cabel, a Boston business man and flier in the first World War, succeeds Cal Thomas F. Sullivan, who recently became Boston police commissioner.

Cabel's father, Godfrey L. Cabel, has been described as the "grand old man of New England Aviation." He died last May when he was 54, and is former president of the National Aeronautic Association and honorary chairman of the Aeronautic Association of Boston. His son, John F. Cabel, was a World War I aviator and instructor in Texas, and served as instructor at a Florida coastal patrol base.

In Georgia, Gov. Ellis Arnall has completed appointment of a state aviation commission which will cooperate with the State Highway Department and other agencies in planning for airports, feeder lines and other aviation facilities in the state, particularly with attention to post-war possibilities.

Commission members, who were sworn recently, are Cody Lloyd of Atlanta, president of Georgia Air Service, Inc.; C. L. Johnson of Cartersville, a county commissioner; George B. Caudle of Atlanta, operations manager for Delta Air; Wallace Sheppard of Atlanta, instructor in an Army contract school and associated with the Georgia Aviation Co.; Oscar L. Woodson, vice president and manager of the Georgia Division of Bell Aircraft Corp., and William C. Goodloe, Valdosta banker.

The commission, whose members will serve without pay, was created with authority by the 1941 general assembly.



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### EXPORT'S EMPLOYEES HONORED:

Among the 30 oldest employees of American Export Airlines honored by the company at a recent dinner in New York were James M. Eales, vice president (center), and W. Songer Green, passenger and cargo manager (right). Eales and Green were the first two men employed by American Export. Executive Vice-President John E. Siner is presenting them with gold pins.

### Transport Meeting

The standing Transportation Committee of the United States Chamber of Commerce held open discussion of aviation problems as a prelude to the regular meeting of the chamber's board of directors.

Because of the unscheduled nature of the session, which followed an earlier conference on highway problems, the subjects were espe-

# Wide Interest in Airport Planning Revealed in Kansas City Meeting

635 representatives from 140 cities and towns in 16 states attend two-day conference on Midwest post-war aviation program.

Interest in airport planning is a major consideration with sympathetic and civic officials, judging from the attendance and attention at the Midwest Airport Planning Conference sponsored at Kansas City by the Aviation Department of the city's Chamber of Commerce.

It was one of the biggest air meetings ever held in Kansas City, with some 635 representatives from 140 cities and towns in 14 states (originally it was to be a nine-state meeting). In the group were 43 mayors and city managers, 18 college presidents and faculty representatives, airline officials, Chamber of Commerce executives, airport managers, plane manufacturers, and airport experts and technicians.

**Sequel to Local Meeting**—The two-day sessions were a sequel to the local air service conference under Kansas City Chamber auspices last November. Delegates to that meeting urged a conference on airport problems. About 300 persons from 30 cities in the region attended the trade area meeting.

Typical comment came afterward from one of the speakers: "I heard a lot of new things," he said. "It wouldn't be a bad idea for other regions to hold similar meetings."

**Hagen Speaks**—Private flying came in for a big share of attention among the various airport subjects up for discussion. One of the speakers on this subject was John M. Hagen, airport project engineer and member of the personnel commit-



BRITISH TYPHOON WITH NEW CAMOUFLAGE

These two views of the British Typhoon, released by the British Information Service, show the unusual camouflage on the lower part of the wings, designed to



aid British ground gunners and fighter pilots in distinguishing the speedy craft from the German Focke-Wulf-190, which it is said to resemble.

tee of the Aeronautical Chamber of Commerce.

Hagen described the personal aircraft field as "the most potential single element in aviation" and who also is executive assistant at American Aircraft Corp., Mobile, Ala., in charge of private flying. "Made of transportation that will re-make our civilization, although it is still in embryo." He planned for aircraft less expensive to buy and operate and simpler to handle and maintain, with emphasis on utility. The last qualification, he told the group, will be governed by three things: ability to fly in a wide range of weather conditions, existence of simple regulations—"values of the road"—and number and location of proper ground bases.

**Little Airfields**—Champions of commerce, Hagen said, will find facilities for ground interest in the provision of ground facilities, or "little airfields," such as are needed for business, industry, and travel. Too early for them now to begin plotting specific requirements. "The mere existence of many airfields," he asserted, "will be a major contribution to the maintenance of a strong and vigorous aircraft industry in the post-war world."

Lois Boward, assistant director of economic research for Transcontinental & Western Air, whose executive vice president, E. Lee Talman, greeted the delegates, emphasized safety as a consideration in the building of airports. Discus-

sions on airport planning, he pointed out, should be made for future expansion, and the well-planned airport should provide additional facilities such as plane service, repair, storage and auto rental services, police and recreational services.

**Concessions**—Comment on these same possibilities was also offered by John Groves, former manager of the Washington National Airport now of the Air Transport Association, where he is secretary of the Committee on Airport Development.

Groves is confident that airports can get a surmounting revenue through concessions and other sources in addition to regular airline, food, base, and school income, and predicts a revival of the early ideas of airport parking, recreational areas and swimming pools.

**Fuel Problems**—Attention of the meeting was called to the importance of fuel problems by Rep. Jennings Randolph of West Virginia, one of the nation's leaders in Congress. Both problems he said, may become crucial in the future. He urged development of synthetic fuel plants to make sure that surface transportation systems will not be stopped and planes grounded.

T. E. Flaherty, of Kansas City, fifth region supervisor of airports for the Civil Aeronautics Administration, said he thought airport development and aviation as a whole should proceed together. He described in detail some of the considerations involved in future requirements.

**Fixed Base Operators**—The place of the fixed base operators in aviation's future was outlined by Col. Rossie Turner, president of the National Aviation Trade Association and head of an Indianapolis aeronautical corporation bearing his name. Donald E. Pratt, of Hays, Kan., expert manager there, commented that it is "up to the smaller municipalities to provide the airports necessary" to sell the public on "the forthcoming air age."

Alfred MacDowell, Wichita, Kan., director of parks and airports, warned the financing plans for airports must be due to the owner or they will become a post-war aviation bottleneck. He discussed financing of capital elements of the airport as well as maintenance and upkeep.

**Turf Airports**—The case for turf airports, especially after the war, was presented by Dr. John Masten, Jr., principal agronomist, Army Engineers, Washington. He believes that, in post-war planning, turf may be used to distinct advantage. Dr. Frank W. Hart, educational consultant for the Civil Aeronautics Administration at the University of California, deflated aviation has greatly stimulated interest among students and predicted that the future, with 30 million students receiving aviation education, would see the development of "many fine research programs."

## Dallas Port Program

City acquires 3,360 acres for new port general development.

National interest reflected in committee on airports continuing to gear plans for modern airport facilities. With acquisition of a 3,360-acre site 10 miles from Dallas for development as a "superport," city councilmen of the Texas city have launched a master aviation program that visualizes an eventual total of 21 airports to serve the metropolitan area.

Armed with recent public approval of a \$5,000,000 aviation bond issue, the councilmen expect to spend at least \$3,000,000 in the next twelve months. The bond issue, incidentally, was approved 8 to 1.

**Facilities**—Stated for facilities to serve private flying, any airport in the country with all-weather runways, has been taken over by the War Department.

The city expects to own and develop three of the ports contemplated in the master plan.

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### 2. Aircraft Electrical Engineering

Provides full background of information necessary for development, service, maintenance, and repair of aircraft electrical systems. It covers all types of aircraft electrical power systems and several related problems. Coverage includes aircraft electrical power generation, aircraft electrical power distribution, aircraft electrical systems, and provides service information on aircraft electrical power generation, aircraft electrical power distribution, and aircraft electrical power systems. By Franklin Morris, Project Engineer, Douglas Aircraft Co., 223 pp.

### ATS Flight Schools Hold Contract Talk

25 training units discuss post-war plans at meeting in Atlanta.

Discussion of Army contracts and post-war plans was held Jan. 20-21 by eight training schools in the Association Training Society. The meeting is at Atlanta, and delegates are expected from 16 states.

The Society is coordinating the organization of more than 40 widely-situated schools doing flight training for the Army Air Forces and United Nations ends. In the group are four basic training schools, five British, one military liaison school and 15 primary.

► **States Represented**—States from which delegates will attend the regional conference are the Carolinas, Georgia, Florida, Louisiana, Tennessee, Mississippi, Alabama, Arkansas, and Missouri.

President of the Society is J. W. Webster, who worked for the Office of War Mobilization. Vice-chairman is George J. Jones, former director of Commerce. Jones foresees in setting up the Defense Plants Corp. Officers at Waukegan headquarters are Wayne Weinhauer (right) and Al B. Richardson. Weinhauer is former



aviation editor of the New York Herald Tribune, and former writer for the Information Division of the Aircraft War Production Council, west coast. He is director of instruction for the training group.

Richardson, recently night editor of the Atlanta Bureau of the Associated Press, will do liaison work for the Army Air schools in the Southeastern states. Western state liaison work will be taken care of by Glen E. Carter, former chief of public relations for the War Department in the northwest, with headquarters at Fort Lewis, Wash.

### ACCA Group Meets

Chief engineers and technical representatives of 30 aircraft companies were in St. Louis this week for a special meeting of the Airplane Technical Committee of the

the Aeromarine Chamber of Commerce.

Eugene W. Norris, manager of the Chamber's technical department, and the principal objectives were to develop constructive recommendations for simplification of the civil aircraft approval system in a manner conducive to sound aeronautical progress and to determine the extent to which industry desires to assume a direct, active part in the determination of airworthiness requirements.

### New Canada-Alaska Air Route Surveyed

A new air route to Alaska from Canada is under survey by the Royal Canadian Air Force. It is learned from the Weather Information Board at Ottawa.

The new route will be north and east of the present northwest staging route from Edmonton to Whitehorse, built by Canada in 1940 and 1941 at a cost of \$31,399,000, and is being used by Canadians as well as U. S. Army Air Force and commercial aircraft en route.

► **McKeesico River Airway**—It will use the Mackenzie River airway used by Canadian Pacific Air Lines and its predecessors, and will branch west of McPherson, north of the Arctic Circle, to follow either branch of the Porcupine River to the Yukon River, probably via Fort Yukon, Alaska. ECAF survey parties are now laying out the route west of McPherson.

### Rails Map Survey Of Air Transport

The Association of American Railroads is expected to make public in about two weeks a report on air transport by a special subcommittee of the Atlantic Bureau of the Associated Press, will do liaison work for the Army Air schools in the Southeastern states. Western state liaison work will be taken care of by Glen E. Carter, former chief of public relations for the War Department in the northwest, with headquarters at Fort Lewis, Wash.

The Air Transport subcommittee, as part of the Railroad Committee for Transportation, organized last year by Judge R. V. Fletcher, vice president of the AAR, with a staff of about 45 officers.

► **General Aircraft Studied**—In addition to air transport, subcommittees are studying some 13 other general subjects, among them motor transport, water transport, pipe line transport, traction, finance, labor and personnel and legislation.

### Pullman Plans Eight To Keep Passengers

Vice-president tells of measures designed to meet competition.

Any transportation instrumentality planning to take passengers from the railroads after the war will have to reckon with sleeping car manufacturers determined to keep them, says George A. Kelly, vice-president of Pullman.

Kelly told Chicago members of the Railway and Locomotive Historical Society that the national transportation policy should be based on equal opportunity for all forms, one under which "each form of transportation will find its proper economic station in our national economy and will function where it is best fitted to serve."

► **Post-War Plans**—Railway Age quotes him to the effect that "other agencies of transportation are planning to divert passenger traffic from the railroads after the war, but Pullman will be ready to meet this challenge. Some of this planning by other agencies is predicated on the assumption that these forms of transportation will continue to receive greatly augmented governmental subsidies. He said, too, the proposals made with this thought in mind stand to increase American traffic to the point where the railroads will be forced to increase their services should be foreseen."

Kelly said Pullman's plans called for low-cost berths at rates "considerably lower" than those now in force, and private rooms with "the latest comforts and conveniences" for little more than the present cost of a lower berth.

### Georgia Body Studies Post-War Airports

A program of post-war development, including plans for a network of secondary airports will soon be undertaken by the Georgia Aviation Commission of which Cody Laird of Atlanta, president of George Air Service, Inc., recently was elected chairman.

John L. Woodson, vice-president of Bell Aircraft and manager of its Georgia division, was named vice-chairman and William C. Goodloe, of Valdosta, secretary.

► **Other Members**—Other members of the Commission appointed last week by Gov. Ellis Arnall, are George E. Cushing, of Atlanta, operations manager of Delta Airlines,

Wallace Sheppard, of Americana, operator of CAA-WTS program at Bonaire and Griffin, Arville Bar-Garrison, of Carters, Crisp County commissioner.

### Air Sciences Group Announces 6 Awards

Six awards for distinguished service to aeronautics, two honorary fellowships, two honorary memberships in the Institute and a broad bibliography of a technical discussion marked the Twelfth Annual dinner of the Institute of the Aeronautical Sciences, Jan. 24, at the Wilder-Airline Hotel, New York. Major R. H. Fleet took office as the next president.

Awards included the Sylvanus Albert Reed to Senator A. Moss, of Mo., who developed the turbocharged aircraft engine. Lossy to Lt. General Joseph F. Goss, for special studies. Webster, division AAF, for contributions to meteorology, John DeJerris to Gen. Gen. Eugene G. Bennis, commanding General of Aviation Materiel, Randolph Field, Tex., for advancements of aeronautics through medical research, the Octave Chanute to Gen. H. McAvoy, chief test pilot of the NACA. For continuous service in flight testing under hazardous conditions, the Lawrence Sperry for a notable contribution by a young man to William Benjamin Bergen of the Glenn L. Martin Co., and a new award, the Thomas DeWitt B. Barron, chief, Bureau of Aeronautics, Navy Department, and Lester D. Gardner, president, Aerocassation Airlines.

Honorary fellowships in the institute went to General Henry H. Arnold and to Sir Richard Fairey, director General of the British Air Commission. Honorary memberships were given to Rear Admiral DeWitt B. Ramsey, chief, Bureau of Aeronautics, Navy Department, and Lester D. Gardner, president, Aerocassation Airlines.

### SHORTLINES

► Preliminary figures from Canadian Pacific Air Lines for 1943 show 76,000 passengers, 2,280,000 pounds of mail, and 91,000,000 pounds of cargo. Passenger and mail traffic increased 31 and 38 percent, respectively, but air cargo was 8 percent under 1942 because of the completion of a number of new airports in recent years. Delta and Pan American increased activity. CPA planes flew 8,636,000 miles in general over 1943. The company opened traffic offices during the year at Victoria, Seattle, Port St. John, Whitehorse, Fairbanks, Skagway, Montreal, Quebec, Arville, Bear Gas, Fort St. John, and airport passenger stations at several points, including fields in northwestern Canada. CPA air transportation employees now number 1,000, compared to 863 in 1942. School and regular pilot employment increased 10 percent.

► Northern Airlines annual totals for 1943 were 5,001,461 pounds and 4,020,212,000 pound miles, gross of 1,166,207 and 1,478,703,000 respectively over 1942. December mail peak was 304,520,000 pounds, and 476,000,000 in peak passenger miles. Northern's passenger miles in 1943 increased 19.8 percent, or 2,361 more than in 1942, while revenue passenger miles of 62,757,000 were nearly 13,300,000 over 1942.

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122. **Accident Prevention Handbook for Aviation Personnel**, \$1.00

123. **Accident Prevention Handbook for Aviation Production**, \$1.00

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136. **Accident Prevention Handbook for Aviation Maintenance**, \$1.00

137. **Accident Prevention Handbook for Aviation Personnel**, \$1.00

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139. **Accident Prevention Handbook for Aviation Maintenance**, \$1.00

140. **Accident Prevention Handbook for Aviation Personnel**, \$1.00

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143. **Accident Prevention Handbook for Aviation Personnel**, \$1.00

144. **Accident Prevention Handbook for Aviation Production**, \$1.00

145. **Accident Prevention**

## PERSONNEL



NEW HEADS OF LAWRENCE AERONAUTICAL CORP.

Dr. Roseland Burnham (left) and Alfred Marshall are now heading Lawrence Aeronautical Corp., Linden, N. J., as president and vice-president, respectively. Previously executive vice-president, Dr. Burnham was director of the aeronautical division of Minneapolis-Honeywell before joining Lawrence. Marshall was formerly with the Rubber Development Corp., Aviation Division, in Akron and Washington.

Donald W. Ralby has been promoted to assistant treasurer of the Ranger Aviatrix division of the Farnell Engine & Airplane Co. He will continue as supervisor of the accounts payable department. He is 38 years old and has been with the company for 18 years.

New York brokerage firm

Hans P. Schmid has been named manager of the aeronautical section of the field engineering department of the sales division, B. F. Goodrich Co. A well-known fire engineer, Schmid has been with the company in various capacities in the company's aeronautical sales division since his return last year from the African theater of war, where he

was engineer in charge of rubber products at two large maintenance and repair bases of the rubber industry in Canada. Schmid joined Goodrich in 1925 as test designer. He is credited with many contributions toward improving the safety and service of tires, particularly those for airplanes. He is a member of SAE and author of numerous technical papers on tire design problems.

Major J. T. Kneller was recently vice-president of Farnell Engineers & Aircraft Corp. in the Marine Corps during the World War, Major Kneller joined the American in 1938 and served in the production and control section of the eastern procurement division until going to Farnell. Before the war, he was executive vice-president of the Railroad Supply Co. and previously, with Bethlehem Steel Corp., as general supervisor of the steel and wire division and head of the Steel and Light Structural Mills. He has done as co-pilot on B-26s and B-24s.

Roger Williamson has been appointed assistant to American Airlines' vice-president, G. M. Moore, and assigned to the Washington office. Also on the Washington staff, under Moore, is Marvin Shulman, until recently supervisor of reservations and ticket offices for the airline in Philadelphia.

E. J. Verholt (left), supervisor of maintenance, Pennsylvania-Central Airlines, has been promoted to chief engineer, with supervision of all engineering and maintenance functions.

Continued expansion of wartime operations made a reorganization of this department necessary, according to a PCA announcement. Before joining a PCA aeronautical engineer, Verholt was a development engineer for Douglas Aircraft Co. He succeeded by R. G. Senn (right), who has been assistant superintendent of maintenance. Senn has a long record of airline maintenance experience. He is said to have initiated the

new communications supervisor of the Washington general office of Pennsylvania-Central Airlines. He is Stanley Kohn, east coast Stanley Kohn, east coast supervisor. In his new position, Kohn is in charge of all telephone, teletype and radio communications in the Washington office. He is a graduate of the University of Akron and has more than 20,000 radio and telegram messages alone handled by the PCA route. Kohn is a graduate of the Keystone Radio Institute in Pittsburgh and has been assigned in Washington since March, 1949.

John W. Rawson, director of communications for American Airlines, has been elected president of Aeronautical Radio, Inc., non-profit organization owned by domestic airlines. Effective Feb. 1, Bentler has been granted an honorary degree of doctor of laws from American to accept the new position. He replaces Claude Paul Goldsmith, now on active duty with the Bureau



Thomas A. Kestell has been made a vice-president of Goodyear Aircraft Corp. He has been sales manager and general manager of the aircraft division, a position he held in the procurement and control department for the past two years. Kestler joined Goodyear in 1937 after his graduation from Massachusetts Institute of Technology. He was first assigned to the tire design department and later received a promotion to a sales management position. In 1941, he went to the procurement department of the Goodyear Zeppelin Corp., serving there during the construction of the airships Akron and Akron. He made a trip to Germany on the Graf Zeppelin and studied aircraft procurement at the Zeppelin research in Goodyear Zeppelin as development engineer. He represented the division of the Goodyear Zeppelin Transport, Inc., in Washington from 1946 to 1948, working on programs for the development of over-ocean airship service.

New communications supervisor of the Washington general office of Pennsylvania-Central Airlines is Stanley Kohn, east coast supervisor. In his new position, Kohn is in charge of all telephone, teletype and radio communications in the Washington office. He is a graduate of the University of Akron and has more than 20,000 radio and telegram messages alone handled by the PCA route. Kohn is a graduate of the Keystone Radio Institute in Pittsburgh and has been assigned in Washington since March, 1949.

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of Aeronautics. G. E. Mours, assistant to Bentler for several years, replaces him as acting director of communications.

John E. Wilson, director of budgets and statistics for Specialty Coating Co., has been named assistant treasurer. He is succeeded by R. M. Purley, budget assistant. Concurrently, Frank P. Tolman, organizational planning engineer, has been appointed assistant to the vice-president for manufacturing.

G. E. Mours was appointed assistant sales manager of Aeromed Motor Corp., makers of Franklin aircraft engines, in the company in 1936 and served there until 1940, as manager of the Curtiss Flying Service, Rochester, N. Y., and in business for himself at the Rochester Airport. He learned to fly at Kelly Field during World War I and has been a pilot ever since. It is his opinion that he will continue his own flying to plane manufacturers in connection with his new sales post.

Thomas J. Lounsbury has been named mail and express representative for the New Haven district of Massachusetts & Western Air Express.

Before joining TWA, he was an engineer for the Lithuanian State Railways. He is seven years younger than that was with the National City Bank. His headquarters will be in the Airlines Terminal in New York.

John P. Gibson has resigned as director of public relations for Northeast Airlines. His place here has not yet been announced.

At the Honors Night dinner of the Institute of Aeronautical Sciences in New York last week, two other award winners were Brig. Gen. Gates G. Barnes (left), commanding School of Aviation Medicine, Randolph Field, Tex., who received the John D. Edwards Award, and Col. John J. Goss, chief of Special Studies Section, Weather Division, Headquarters, Army Air Forces, who got the Robert M. Lasy Award for 1948. Gen. Barnes was chosen for his work on the meteorological aspects of aviation medicine and was a member of the Medical Reserve Corps in 1947, and has had the longest continuous service of any medical officer assigned to the AAF. In World War I, he served with the aviation section of the signal corps, and in 1918 was assigned to the aeronautical division of the aviation section, Signal Corps.

Col. George, who at present is on war leave from Eastern Air Lines, received the Robert M. Lasy Award in the engineering division, United Aircraft Corp. With the presentation of the production personnel, one seen here over each of the two Pratt & Whitney plants in the background (front) is Col. Hubert E. Johnson, USAF, who presented token "E" pins to employees of the plant.



Barnett George

Thomas F. Barnes, who recently became Boston police chief.

Charles E. Cabel is Collier E. Colby, sometimes called the "old iron man" of New England aviation. The old Colby was advancing years ago the military use of planes. He learned to fly in 1919 at the age of 54. He is a long-time president of the National Aeromodel Association, and honorary chairman of the Aeromodel Association of Boston.

In the new reorganization of PCA's engineering and maintenance department, the research and development and maintenance department will be headed by Harry S. Park (right), who has directed that work heretofore. L. F. Bessemer (left), supervisor engineer, becomes buildings and facilities engineer. A. P. Martin (center), formerly assistant to superintendent of maintenance, now is office manager, engi-



neering and maintenance department. Appointed research and development engineers were J. B. Alliss and W. C. Liss.



ADMIRAL RICHARDSON AT PRATT & WHITNEY

Admiral Laurance B. Richardson, USN, assistant chief, Bureau of Aeronautics, presents the Army-Navy "A" pin to acting general manager William P. Gleason of the Southington plant of Pratt & Whitney Corp. With the presentation of the production personnel, one seen here over each of the two Pratt & Whitney plants in the background (front) is Col. Hubert E. Johnson, USAF, who presented token "E" pins to employees of the plant.

## FINANCIAL

# Preferreds Hold Leading Position In Number of Aircraft Companies

Sinking fund provision of Consolidated-Vultee \$1.25 issue soon to become operative; cumulative as to dividends.

By ROGER WILCOX

Few, if any, aircraft preferred stocks occupy a leading position in the capital structure of a number of companies.

Attention to this group of shares is called by the sinking fund provision soon to become operative for the Consolidated-Vultee \$1.25 preferred. These shares represent the original preferred stock held by the old Vultee Aircraft Corp. at \$35 per share in December, 1941. At the outset, there were 260,000 shares issued. In March, 1943, when the merger creating Consolidated-Vultee Aircraft Corp. was effected, this stock was exchanged share for share into an identical preferred series of the new company. At the time of the exchange, the issue was reduced to 214,710 shares.

**Exhibit 144-28 in Sheets.**—While this preferred stock grants the company in respect to asset position and dividends, it is subordinate to any bank loans that the company may create. Nevertheless, this preferred was credited with earnings of \$66.39 per share for the fiscal year ended Nov. 30, 1942. Earnings were probably materially higher for the most recent year. The small amount of preferred shares outstanding makes for considerable leverage in these earnings. The senior issue of common stock is entitled to the annual dividend of \$1.25 per share before any payments can be made on the preferred.

The Consolidated-Vultee preferred is callable at \$37.50 per share. This would mean a principal payment of but \$13,348,875.38 to retire the entire issue and should set prove too difficult for the company to accomplish, if not included. At the present market price of about \$20 per share, however, only \$4,334,380 is indicated. This is where the sinking fund provision can become a potent factor.

**Sinking Fund.**—On or before Feb. 15 of each year, the company is now

now—on the convertible feature. This permits conversion into the common at the rate of 1½ shares of common for each share of preferred. During 1943, the Consolidated-Vultee senior issue sold as high as \$37.25 and as low as \$17.30 per share.

**↳ Largest Preferred Offerings.**—The largest industry preferred stock offering was made by United Aircraft Corp. when it sold 260,000 shares in January, 1943, at \$166 per share for a total of \$52,960,000. This issue has since been reduced to 260,000 shares early in 1943.

The United Aircraft preferred is cumulative as to dividends at the yearly rate of \$5.00 per share. The stock is convertible at the indicated rate of two and one-half shares of common for each share of preferred. On this basis, the conversion privilege is of negligible value at present market prices. There is also a sinking fund provision but it is of small consequence. The company has agreed to set aside semi-annually, a sum equal to 1 percent of the latest amount of preferred at any time issued, for purchase at prices not exceeding \$100 per share. Any unexpended balance is to revert to the company. The stock was called at \$100 per share up to Jan. 1, 1943, and at \$125 thereafter. As of Dec. 31, 1942, that preferred had a book value of \$34.46 per share. (This figure is much higher now.) During 1943, this issue ranged from a high of \$16.50 per share to a low of \$9.50.

**Precautionary Measure.**—Investment circles, it has been assumed generally that when United Aircraft marketed that issue it was in no dear need of funds, but was taking precautionary measures to protect its working capital. The expectation is that the company will return that entire preferred issue at its first opportunity.

**Curtiss-Wright Corp.** has a type of preferred in the form of \$1.00 non-cumulative Class "A" stock. This issue, however, has no preference as to seniority. Moreover, the stock is non-convertible as to dividends and this has been a troubled point in the past to the stockholders of this issue.

The Class "A" is convertible into the common on a share-for-share basis. There appears to be little reason to expect any such conversion to occur.

**↳ Outstanding.**—There are 1,100,000 shares of the senior stock outstanding. This stock had a wide range during 1943, fluctuating between \$24.50 and \$14.525 per share, and currently sits around \$19. The com-

mon can be purchased at about \$6 per share.

## Air Carriers' Revenue Up Sharply for Year

**Net** assets \$29,724,856 against \$21,912,469 in 12 months ended Oct. 31.

Net operating revenue dropped off in October for the 15 domestic air carriers, the Civil Aeronautics Board reports, although for the year ending with that month it was well ahead of the same twelve-month period a year earlier.

October net operating revenue was \$10,000,000 compared with \$10,381,144 in October, 1943. For the year to Nov. 1, however, it was \$26,724,626, compared with \$21,912,469 in the twelve months to Nov. 1, 1943.

**↳ Mileage Increases.**—The picture was reversed when it came to revenue miles flown. Last October these amounted to 9,855,345, against 5,868,339 in October of the previous year. For the twelve months ending October, 1943, they were 111,380,514, compared with 110,673,523 in the same 1942 period.

Other figures, for October, 1943, and October, 1942.

Total operating revenue, \$11,160,500 and \$10,947,750; operating expenses, \$8,495,653 and \$8,671,006. For the twelve months ending October, last year, compared with the corresponding period just previous, Total operating revenue, \$118,231,627 and \$106,363,580; operating expenses, \$86,591,701 and \$84,931,111.

## NWA Salaries

Carl Hunter, president of Northwest Airlines, Inc. of St. Paul, received a salary at \$36,000.00 during the fiscal year ended June 30, 1943, according to the company's annual report to the Securities and Exchange Commission. Other salaries paid were: E. L. Whyte, vice-president and treasurer, \$10,000; and E. H. Ferguson, vice-president, \$12,325.

## Financial Reports

**↳ Consolidated Vultee Aircraft Corp.** reports profits for the fiscal year ended Nov. 30, last, having effect to final reorganization of contracts and adjustments for federal income and excise tax. Total net income and excess profits taxes was \$71,333,013, equal to \$8.46 a share on 1,705,004 common shares. Of the total net income, \$5,799,888, equal to \$8.18 a common share, has been set aside for post-war readjustments.



## THUNDERBOLTS IN THE MAKING

These workers who formerly built kitchen ranges and refrigerators at the Massillon, Ohio, plant of Westinghouse Electric and Manufacturing Co., are shown here applying aluminum sheet to the tail framework of Republic P-47 Thunderbolt fighter planes.

## TELLING THE WORLD

**↳ Knicker Motors** has appointed West-Marquis, Inc., Los Angeles and San Francisco advertising agency, to handle its account. The agency's services will be used as well as a number of South American national publications in Spanish and Portuguese.

**↳** Because of the success of its first venture into book publishing with a 32-page booklet entitled "How to Win Workers or—How to Win—West's Work," Comm Aircraft Co. has issued two more books. One for employees called Just an Ordinary Guy Looks at His Job, which includes pertinent facts on the subject. The other book can be avoided, is Knicker's Roper.

**↳ Airlines Enterprises, Inc., Houston,** has opened a Western Publishing Co. office. Tales, a magazine in national business papers at planned.

**↳** Knicker Express Agency has sent a circular to its clients for air freight rates to its express list. Because new rates for air express shipments are now in effect, in some cases as much as 18½ percent lower, the company is asking to have its old estimates discontinued. One gadget suggests appropriate rates for express, delivery dates and approximate time required for shipment, and approximate costs.

**↳** Advertising by United Aircraft Corp. and Borden Co. has led to the first test best-seller advertising ad. in 1943, according to the best "Contest Study of Newspaper Advertising" issued by the Advertising Research Foundation. The United Aircraft ad. was one word: a seven-page advertisement of the type. The company has recently in its other newspapers put-forth Co. was the advertising

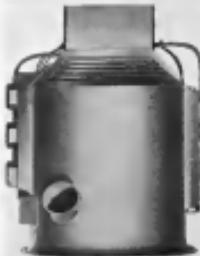
agency. Borden ad. headlined "Identify Division of American Anger," placed through Buchanan & Co., also received a high percentage of responses.

**↳** Republic Aviation Corp. has appointed Erwin, Wiss & Co. an advertising agency. This agency also handles the Air Transport Association account.

**↳** A new three-page booklet, "How to Use Electricity Heated Flying Clothing," has been prepared and published by the Passer Products Division of General Precision by the Material Command of the Army Air Forces, Wright Field. Written in light, non-technical style, with instructions on correct operation of the P-51 type flying suit, the cover drawing has a "pin-up" flavor. It depicts two girls engaged in the program in a plane, smiling, with one holding a flying skirt while "Roger" looks on approvingly.

**↳** W. F. Nevin Co. has been appointed sales and advertising manager for Young Master Co., manufacturers of heat transfer products for aircraft, automotive, marine, and other fields.

**↳** The de Havilland Aircraft of Canada has issued a booklet "How I Can Use Myself," which is intended to encourage and emphasize in the aviation industry. The booklet contains a series of articles on techniques sponsored by the de Havilland Society chapter of the "Who Is Who" in Canada, concerning the number of blades as "propellers"; "What is compressibility?"; "What is the meaning of induced drag and parasite drag?". Requests for the booklet should be sent on company letterheads, stating position, name, and address. The de Havilland Aircraft of Canada, Postal Station L, Toronto.



### HELICOPTER ENGINE:

This is a gas-turbine, opposed, air-cooled Franklin engine, built by Aerocraft Motor Corp. of Syracuse, N. Y., to power post-war helicopters. The circular housing houses cooling air around the engine from the engine-driven fan at top. Engine operates in vertical position directly below main rotor shaft.

## Our Global Airlines

Commemoration of the Naval Air Transport Service to air transportation, described in the GWI report, are as remarkable for the difficulties which have been surmounted as for mere arithmetical progress in miles flown, passengers carried, and pounds hauled.

It is becoming popular for writers to discount post-war importance of the Army and Navy transport services on the ground that cost of operation is no element, and that shipments which may have no commercial necessity for flying after the war are being rushed by air to the Caribbean, South America, or Australia every day.

Granted this is true, the fact remains that worldwide airline operating organizations have been built up on a scale never seen in aviation before. They are being compelled to operate on time margins that may never be necessary again. They are required to solve problems which they might never have met in commercial services or, if they had, there would have been time for preparation and planning. They have had to use any planes they were given and make the most of them. They have cut corners and red tape, and broken with tradition in everything from dispatching to cargo packing, all under the terrific urgency of the moment.

The American's unique ability to improvise, and his ingenuity in getting the job done, are preparing for new techniques, new operating procedures, which will set our foreign competitors back on their heels when scheduled commercial flights return.

The backlog of wartime experience which both our domestic and foreign airline people will have at the armistice gives us an enviable advantage. They know they have been inefficient. That is part of any war project. More important, they are keeping records and building up experience which tells them why. The result will be something to watch.

## Air Power "Optimism"

A PROVOCATIVE THESIS is beginning to bob up in print contending that there has been too much optimism about the possibilities of air power. The thesis appeared last week in a syndicated columnist's article and in a national news weekly. Other references have been published recently.

Those writers who are breathless on aviation say results from bombing are not to be as decisive as the "air enthusiasts" had promised. They admit that air power is a first essential to any victory but, to quote the U. S. News, "the concept of air power as

the decisive power appears to be undergoing a very great strain. Next few months will tell."

Only three days before that periodical appeared, Gen Spears told reporters in England that he believes the Luftwaffe can be beaten this summer. A few days earlier a high official in Washington had told one of the editors of *Aviation News* that the AAF believes it could down Luftwaffe in sixty consecutive days of bombing, if weather permitted such operations.

It should take little imagination to picture the great advantage the Allies will have, both on the ground and in the air, if they succeed in sweeping the Luftwaffe from the skies.

No one in aviation is ready to give credence to reports "leaked" by anonymous persons to economists and national magazines that air power is failing down on the job, or even threatening to do so. It might be specious, however, to ask if air power is getting the chance it should have?

## Counting Spare Parts

THE NAVY'S BUREAU OF AERONAUTICS under the new assistant chief, Rear Admiral Lawrence B. Brinkley, is ordering accelerated production and delivery of spare parts.

Output of completed aircraft by Navy contractors has reached unprecedented efficiency. Fully as important, however, at the present stage of the Navy's aircraft program, is adequate supply of spare parts for distribution throughout the vast fighting areas in the Pacific in preparation for the stepped-up campaigns against the Japs. A plane sitting under an island palm tree minus a wing-tip is non-existent as far as contributing to our aerial striking power.

This rising importance of spare parts in the combined Army and Navy aircraft and engine program is indicated by statistics covering dollar volume. In 1943, value of spare parts production totaled approximately 30 percent of the entire aviation schedule.

In the first six months of 1943, the figure was about 21 percent. However, late in 1943 the monthly shipments had risen nearer to 25 percent, and in 1944 may reach 35 percent in some months. These data include aircraft, engines, target planes, gliders.

Spare parts do not count as completed aircraft, obviously. Plants cannot and will not increase production both of completed planes and parts simultaneously. This rising proportion of parts output is another instance in which the "numbers racket," assessing monthly production in number of planes turned out, whether paddle jumping losses credit or superboomers, fails as an honest index of the industry's production effect.

ROBERT H. WOOD



Boeing's famous ground power and speed in the air is essential for successful attack. Wings for America's "Sailor" built by Grand Rapids craftsmen.



## Teamwork of 15 plants

for fast, precision  
production in WOOD

for AIRCRAFT

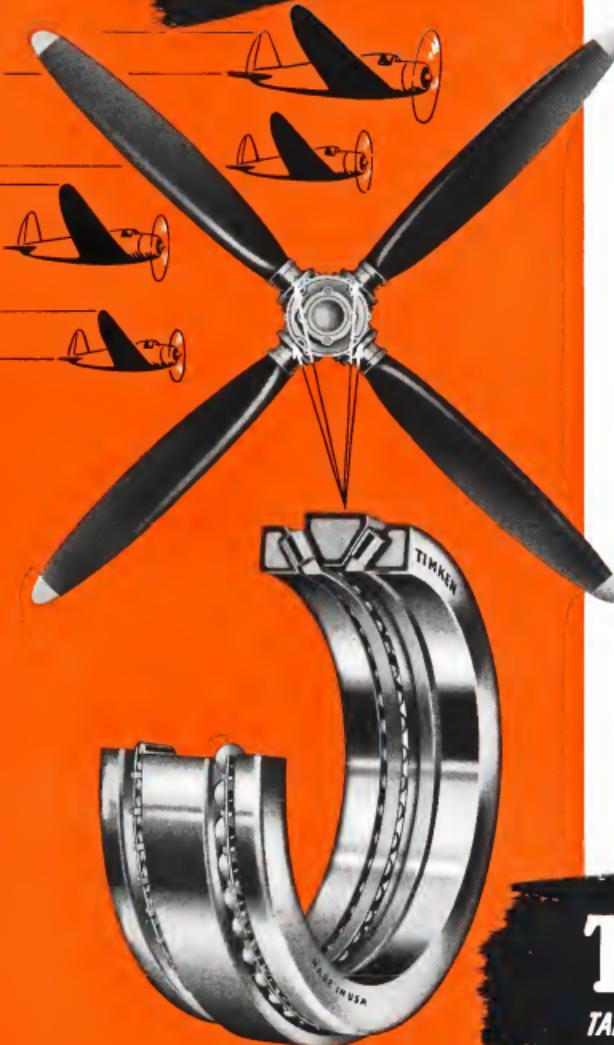
**GRAND RAPIDS**  
INDUSTRIES, INC.  
GRAND RAPIDS, MICHIGAN

15 Plants  
Famous for Box Furniture  
Wood in One Production  
for the Airplane Industry

SALES: 101 EAST MICHIGAN AVENUE  
WORLD WAR II BOX DIVISION: 1000 E. GRAND  
EX-ARMED FORCES: 1000 E. GRAND  
SALES: 101 EAST MICHIGAN AVENUE

Experienced research, engineering, and  
coordinated production in wood — solid  
or laminated — for AIRCRAFT or after  
war requirements. Inquiries will receive  
immediate executive attention.

# Right ON the Button



WITHOUT reservation the Timken Propeller Blade Bearing is the most difficult bearing we have ever manufactured.

The bearing surfaces must be finished unbelievably smooth otherwise the blades will not feather correctly at high propeller speeds. Every bearing is given a most severe torque test.

Weight variations between any two complete bearings are held "right on the button," otherwise bearings alone would throw propellers out of balance.

There are thousands of Timken Propeller Blade Bearings in service and they are making an excellent performance record in fighter and bomber plane service.

If you are interested in propeller blade feathering bearings we welcome your consultation.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
TAPERED ROLLER BEARINGS